REMARKS

In the Office Action, claims 6 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's Admitted Prior Art (Fig. 7 and spec. pages 1-3) in view of Tanaka in view of Rice (U.S. Pat. No. 5,722,668). Claims 5 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Winters in view of Havens (U.S. Pat. No. 4,039,741) in view of Rice.

Amended claims 5 and 13 specify a construction in which the plasma seal installation groove 4 and packing installation groove 3 are formed in an approximately quadrangular cross sectional shape, side wall portions 3a and 4a of the installation groove 3 and 4 are formed at a right angle with respect to an end surface 2a of the installation member 2 in the plasma irradiating side, and an end portion of the plasma seal 6 is brought into contact with the side wall portion 4a of the plasma seal installation groove 4 when irradiating a plasma to the plasma resistance seal 1. This construction is supported by an embodiment described in paragraph [0043] and Figure 2 in the U.S. Pat. Publication No. 2005/0253341. Since a vacuum is generated on the plasma radiating side, the end of the plasma seal 6 is stopped by the side wall 4a of the plasma installation groove 4 to prevent the plasma seal from protruding from the plasma seal installation groove 4.

Amended claims 6 and 14 specify a construction in which a diameter of the packing 5 is set to be larger than a width of the plasma seal 6. This construction is

supported by Figures 3 and 4. This construction can accomplish a positive sealing effect, since the packing 5 is sufficiently compressed in use.

In addition, amended claims 6 and 14 specify another construction in which the packing installation groove 3 is formed in an approximately quadrangular cross sectional shape, side wall portion 3a of the packing installation groove 3 is formed at a right angle with respect to an end surface 2a of the installation member 2 in the plasma irradiating side, and the plasma seal 6 is compressed between the side wall portion 3a of the packing installation groove 3 and the packing 6 when irradiating a plasma to the plasma resistant seal 1. This construction is supported by an embodiment descried in Paragraphs [0061], [0075], and Figure 4 of U.S. Pat. Publication No. 2005/0253341. Since a vacuum is generated on the plasma radiating side, the side wall 3a of the packing installation groove 3 pushes the convex surface 6c of the plasma seal 6 to deform the plasma seal 6 elastically wile the packing 5 pushes the concave surface 6d of the plasma seal 6 to deform the plasma seal 3 elastically. Thus, it is possible to enhance a spring force of the plasma seal made of the PTFE that is readily subject to creep strain and to improve an elastic recovery function (sealing function).

In the present invention, a combination of a shape and a material of the plasma seal 6 is an important feature. The cited documents neither disclose nor suggest such a feature.

In particular, the Winters et al. patent, the Havens patent, and the Rice et al. patent neither disclose nor suggest the construction specified in amended claims 5 and 13, in which the plasma seal installation groove 4 and packing installation groove 3 are formed in an approximately quadrangular cross sectional shape, side wall portions 3a and 4a of the installation grooves 3 and 4 are formed at a right angle with respect to an end surface 2a of the installation member 2 in the plasma irradiating side, and an end portion of the plasma seal 6 is brought into contact with the side wall portion 4a of the plasma seal installation groove 4 when irradiating a plasma to the plasma resistance seal 1.

The Winters et al. patent discloses a plasma resistant seal 232. However, the plasma seal 232 includes a core 236 made of an elastomer and a jacket 234 made of a fluorocarbon polymer and covering the core 236. Since the elastomer is not PTFE, the whole plasma seal 232 is not made of PTFE.

Even if the plasma seal 232 is changed from a circular cross section to a rectangular cross section, since the whole plasma seal 232 is not made of PTFE, the plasma seal 232 will be readily deformed when it is subject to a pressure difference due to a vacuum suction, if the plasma seal 232 is disposed in a position shown in Figure 7. Accordingly, it is impossible to prevent the plasma seal 232 from protruding.

The Havens patent discloses a gasket made of a metal (beryllium steel). The gasket in the Havens patent cannot be utilized in the semiconductor industrial field and the like.

The Rice et al. patent merely discloses gaskets 68 and 76 disposed between the members 12 and 20.

The Applicant's Admitted Prior Art (Figure 7), the Tanaka patent, and the Rice et al. patent neither disclose nor suggest the constructions specified in amended claims 6 and 14, in which a diameter of the packing 5 is set to be larger than a width of the plasma seal 6 and in which the packing installation groove 3 is formed in an approximately quadrangular cross sectional shape, side wall portion 3a of the packing installation groove 3 is formed at a right angle with respect to an end surface 2a of the installation member 2 in the plasma irradiating side, and the plasma seal 6 is compressed between the side wall portion 3a of the packing installation groove 3 an the packing 5 when irradiating a plasma to the plasma resistant seal 1.

The Applicant's Admitted Prior Art has the problem described in paragraphs [0002] to [0006] in U.S. Pat. Publication No. 2005/0253341.

The O-ring of the Tanaka patent is a laminate comprising a layer 2 of perfluororubber and a layer 1 of other rubber. However, the perfluororubber is not PTFE. Since the chemical formula of the perfluororubber described in the

specification of the Tanaka patent contains oxygen, the perfluororubber is not PTFE. The O-ring in the Tanaka patent containing different materials has no problem that an elastic function is lowered on account of creep strain. If the O-ring is formed into an arch shape, a spring force of the O-ring will be lowered and a sealing effect will be deteriorated.

Based on the foregoing amendments and remarks, it is respectfully submitted that the claims in the present application, as they now stand, patentably distinguish over the references cited and applied by the Examiner and are, therefore, in condition for allowance. A Notice of Allowance is in order, and such favorable action and reconsideration are respectfully requested.

However, if after reviewing the above amendments and remarks, the Examiner has any questions or comments, she is cordially invited to contact the undersigned attorneys.

Respectfully submitted,

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Date: April 29, 2009
JCH/JLS:ms